

Claims

What is claimed is:

1. A method of fabricating thin film transistor TFT array, comprising the steps of;
 - 5 forming the gate electrode and using the replacement method of the A-Si seed to deposit the first wiring on the substrate, and defining the gate electrode of the thin film transistor TFT array;
forming the dielectric layer, the A-Si layer, and N⁺ layer, and the layers deposit in order, and the dielectric covers on the up side of
 - 10 the gate electrode, and the A-Si layer being between the dielectric layer and the N⁺ Si layer;
defining the contact window and using the second mask to define multiple contact windows;
depositing the transparent conducting layer, and the transparent
 - 15 conducting material placed on the multiple contact windows;
defining the source and the drain electrodes and using the third mask to define the source electrode and the drain electrode in the thin film transistor TFT array;
etching channel; it using coverage of the fourth mask to etch the
 - 20 component contact window as a conducting channel; and
placing a passivation layer, and depositing a passivation layer, and the fourth mask placed on the passivation layer, and processing etching on the passivation layer of non-fourth mask coverage for implementing thin film transistor TFT array.

2. The method of fabricating thin film transistor TFT array according to the claim 1, the replacement method can be chemical plating method, and it uses the low-resistance metal which with stronger oxidation ability to Si, and works with
5 chemical plating method to process oxidation-reduction reaction, and the area of the A-Si definition is replaced by the first conducting metal.
3. The method of fabricating thin film transistor TFT array according to the claim 1, the process of the defining gate
10 electrode uses the deposition methods to define, and the deposition method can be physical vapor deposition PVD, low-pressure chemical vapor deposition LPCVD, or plasma enhanced chemical deposition PECVD.
4. The method of fabricating thin film transistor TFT array
15 according to the claim 1, the process of the defining gate electrode used the deposition methods to define, and the conducting metal depositing on the gate electrode can be made of Cu, Al, Ag.
5. The method of fabricating thin film transistor TFT array
20 according to the claim 1, the process of the forming dielectric layer can use the continuous deposition method to form the dielectric layer with oxide material.
6. The method of fabricating thin film transistor TFT array according to the claim 1, the process of the forming dielectric

layer can use low-pressure chemical vapor deposition LPCVD, or plasma enhanced chemical deposition PECVD to implement.

- 5 7. The method of fabricating thin film transistor TFT array according to the claim 1, the material of the transparent conducting layer in the process of the depositing transparent conducting layer can use ITO or IZO material to implement.
- 10 8. The method of fabricating thin film transistor TFT array according to the claim 1, the process of the defining gate electrode and drain electrode uses stronger oxidation ability in the second conducting metal rather than Si has to implement the replacement, and the partial N^+ Si layer is as a N^+ Si seed to process oxidation-reduction reaction, and the replaced parts of the N^+ Si seed are defined as the source electrode and the
15 drain electrode.
9. The method of fabricating thin film transistor TFT array according to the claim 1, the second conducting metal is made of Cu, Al, or Ag materials.
- 20 10. The method of fabricating thin film transistor TFT array according to the claim 1, the fourth masking process can use a positive-type of the photo-resist to process shielding.